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L Radio communications
system for Hamilton City
Corporation & Hamilton-Wentworth
Regional Municipality vehicles
- purchase documents

The Spectator, Thursday, January 8, 1981

Emergency radio system 'obsolete'

THE OLD days of radio are still alive in Hamilton-Wentworth.

Thirty-year-old, vacuum tube radios that could give up the ghost at any time, form the heart of the city and region's communication system. The system provides the vital link between senior staff and snow trucks, bylaw inspectors and other field employees.

"I personally wouldn't know what the hell to do" if our base radio burned out during a snow storm and left city hall without contact with its snow plows, Bob Morden, streets and sanitation director, said yesterday.

Yet, Burlington, which had the same type of radio equipment, learned last year that it could happen. The base radio burned out in late spring, leaving the city without radio communication for two or three days, said Don Chouinard, fleet manager for Burlington.

Burlington was lucky. Another old machine was found to get the city back on the air. And the burn out occurred in good weather. The only result was that foremen

had to do a lot more driving around to check on jobs.

"In a snow storm, it would be impossible to handle," Mr. Chouinard said. Snow truck drivers would still be sent out on their routes but supervisors would have to drive out to find drivers rather than radio when specific problems occurred and needed attention, causing dangerous delays.

Mr. Morden said said plowing of secondary and local streets would be delayed because extra plows would be assigned to major streets and Mountain accesses to ensure they are cleared.

Tom Bradley, city purchasing director, commented, "We're living on borrowed time." He noted that the system was only guaranteed to last 10 years and has gone three times that long.

Even without a complete breakdown, city drivers often lose radio contact because their truck radios don't work, Mr. Morden said. And the present radios are subject to interference and the limited number of channels often delays reporting, he said.

The system is due for replacement but it won't be cheap. A new radio system will cost the city about \$450,000 and the region another \$377,000, Mr. Bradley said. A proposal to replace the existing 192 radios with 200 new ones at the region and city will be before the city transport and environment committee in two weeks.

Mr. Bradley said the number of problems with the existing radios has been increasing rapidly in the last couple of years. And the manufacturer has told the city that it is becoming impossible to find parts to keep the equipment operating.

Gary Spedaliere of KVA Communications and Electronics Co. of Downsview concluded, after examining the system for the city, that the existing equipment "is obsolete and expensive to maintain. This equipment requires immediate replacement."

Aside from the risk of breakdown, the existing system is plagued with problems, Mr. Bradley said.

The city and region have only three frequencies, with only one channel each,

which means that when one call is going through to the streets department, no other calls can get through, he said.

The new system will provide four frequencies with four channels each. A switch of a lever will allow the system to tie in with police and fire radio systems. A central control room will ensure communication between departments in emergencies, Mr. Bradley said.

The new system will get rid of interference from CB radios and paging systems and also will provide portable radios, providing more protection for bylaw enforcers who sometimes are hassled while out of their cars, he said.

Mr. Morden noted that the car radios also will record the fact that a call has come in even when a person is out of a car, which will reduce the number of uncompleted phone calls field staff members now make.

The improved communications should improve the speed and efficiency of the whole system, Mr. Bradley said.

L. G. SALTMARSH
FIRE CHIEF



THE CORPORATION OF THE CITY OF HAMILTON

HAMILTON FIRE DEPARTMENT

55 KING WILLIAM STREET

HAMILTON, ONTARIO

FILE NO. _____

September 11, 1979

RECEIVED

SEP 17 1979

PURCHASING DEPT

Chief L. G. Saltmarsh

Subject: Z.B.B. RECOMMENDATION #1

Sir:

On September 11, 1979 a meeting was held by Acting Chief A. Grieve, with myself and Mr. Bradley of Purchasing. The topic of discussion was our position relative to the Z.B.B. recommendation for the budget year 1979 stating that:

"Fire

1. The repair of radios and communications equipment is currently contracted out for all City equipment. Some concern has arisen as to the level of service under the contracts. It is recommended that a review of these contracts be conducted and the feasibility of in-house testing and repair of communications equipment be established for not only the Fire Department, but for all relevant City Departments."

Presently a communications research study is underway but does not include this facet. It's scope is to determine the City's needs in respect to the age and need to renew mobile equipment by means of the depreciation method. Mr. Bradley has suggested that the same task group include the recommendation as a report item during their research effort and subsequently report to the Board Of Control.

We were advised by Mr. Bradley to include our request for test equipment in the 1980 budget proposal, indicating our priority if the complete package could not be funded, and to include that the equipment would not become redundant pending any formation of a Communications Repair facility.

continued.....

The proposed aim of group will be, to develop an equation of self maintenance costs versus those in force by contract maintenance. It is well recognized that personnel loss time and revenue loss during contractor maintenance significantly increase the cost of the overall contracts. Reports will be forwarded as progress is achieved by the investigation committee.

Respectfully yours,

C. F. Wilson

C. F. WILSON
Communications Officer

c.c. A. Grieve, Deputy Chief
T. Bradley, Purchasing



THE CORPORATION OF THE CITY OF HAMILTON

PURCHASING DEPARTMENT

HAMILTON, ONTARIO

December 29, 1980.

Alderman F. A. Lombardo, Chairman
Transportation & Environment Committee

The Sub-Committee of the Depreciation Committee that was formed to consider the problems related to the radio communications used by the City and the Region has now concluded their study and submit to your Committee, due to the fact that the two main users, Streets & Sanitation and Traffic Departments are under this Committee, the following recommendation:

That the total communication system be replaced and that tenders be called for this purpose immediately. The City's share of the total cost of the radio communication system as recommended by our consultants, KVA Communication and Electronics, including the final training programme and a contingency will cost \$451,000. if replaced in the first quarter of 1981. Failure to meet this date, an additional 6% will be required to finance the project.

I have enclosed support letters from Streets & Sanitation, Traffic and the City Clerk Departments; comments from the communication experts in the Fire and Police Departments; letter of concern from Motorola Electronic Sales which is the company servicing our present equipment; and a summary report from the consultants.

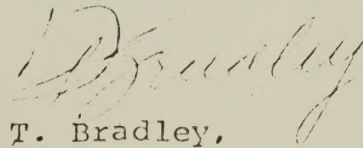
The three major areas that were addressed by the sub-committee and have assisted in making the recommendation are:

- (a) The normal expected life of the equipment is 10 years; the majority of our equipment is 30 years old. The service contractor, Motorola, can no longer find replacement parts for the units we have and we therefore are now renting 30 radios. The main base station requires major repairs and parts may not be available.
- (b) As indicated the system was designed 30 years ago for three Civic Departments; to-day seven different City and Region Sections of various Departments with many more radios are using the same three frequencies. The system cannot handle emergencies such as snow storms or other major emergencies, nor can it provide the coverage that is now needed by the various users.
- (c) There is no provision for a centralized co-ordinated

emergency system and the night dispatch system is inadequate.

As noted in the summary, the implementation schedule indicates that 40 weeks are required to have the system operational before the winter season of 1981. I therefore, on behalf of the Committee that has study this problem for the past year, request your Committee to approve the recommendation that we have made to-day so that the Capital Budget Committee can consider it at their meeting to be held on January 8, and thereby have it included in the 1981 Capital Budget Programme.

Respectfully submitted,



T. Bradley,
Director of Purchases.

c.c. Mr. R. Prowse, Secretary,
Mr. W. H. McFarland,
Mr. R. Morden
Mr. R. Desjardins
Mr. E. Simpson
Mr. G. Stone



80-1040
R.A.Morden

CITY HALL
HAMILTON, ONTARIO
L8N 3T4
TEL. 527-0241

THE CORPORATION OF THE CITY OF HAMILTON

December 11, 1980

Mr. T. Bradley
Director of Purchases

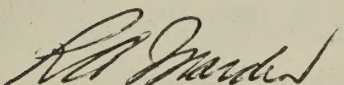
Re: Communications System

Dear Sir:

Please be advised that we have reviewed the report with respect to updating the present communications system in the City of Hamilton, and concur that the City of Hamilton should proceed as soon as possible to implement the recommendations of the KVA Communications and Electronics Company.

I have also reviewed and concur with the Consultants regarding the implementation of a Central Dispatch Console for control of all four recommended channels in an emergency situation to provide a complete back-up system.

Yours truly,


R.A. MORDEN
DIRECTOR STREET SERVICES

RM/bs



REFER TO OUR

REF. # _____

THE CORPORATION OF THE CITY OF HAMILTON

R. J. DESJARDINS, P. ENG.,
B.S.C., M.I.T.E., M.T.P.I.C.
TRAFFIC COMMISSIONER

OFFICE OF
DEPARTMENT OF TRAFFIC
HAMILTON, ONTARIO

RECEIVED

NOV 6 1980

November 5, 1980.

Mr. T. Bradley,
Director of Purchasing.

PURCHASING DEPT.

Re: K. V. A. and Associates Consultant's Report on the
mobile radio communications system

Dear Sir:

Please be advised that we have received the draft report as submitted by K. V. A. and Associates and we are in agreement in principle with the consultants recommendations as pertaining to this Department and as amended with respect to the provision of portable communications facilities for the By-law Enforcement Officers.

We are looking forward to the implementation of the replacement communications system in terms of:

1. Improved communication for the Department when co-ordinating Departmental activities or joint activities involving this Department and the Department of Streets and Sanitation.
2. Improved communications facilities during severe weather disturbances or after traffic collisions that result in damages to traffic control equipment.
3. Reduced vehicle down time and productivity losses as a result of the frequency of repair to the existing radio equipment.
4. Improved personal safety for the By-law Enforcement Officers.
5. Reduced vehicle fuel consumption.

It is our understanding that considerable lead time is required in order to implement the new system and we would be supportive of any efforts you may be able to direct at having the system ready for the winter of 1981-1982.

We appreciate your Departments efforts at co-ordinating the review of the radio communications system.

Yours very truly,

R. J. Desjardins

R. J. Desjardins,
Traffic Commissioner.

JH/tb
cc Mr. M. F. Main
Director of Traffic Engineering

E. A. SIMPSON
CITY CLERK

K. E. AVERY
DEPUTY CITY CLERK



CITY HALL
HAMILTON, ONTARIO
L8N 3T4
TEL. 527-0241

THE CORPORATION OF THE CITY OF HAMILTON
OFFICE OF THE CITY CLERK

December 22, 1980

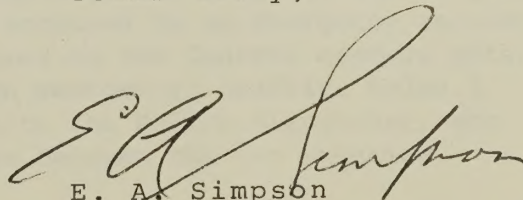
Mr. T. Bradley
Director of Purchasing Department

Dear Sir:

Re: Radio Communications System

This department is in agreement with the consultant's report to have the communications system which is used by members of my staff replaced with the equipment that is being recommended.

Yours truly,


E. A. Simpson
City Clerk

EAS:SJD:hm

155 KING WILLIAM STREET, HAMILTON, ONTARIO, CANADA, L8R 1A6- TELEPHONE (416) 522-4925

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DEC 11 1980

PURCHASING DEPT.

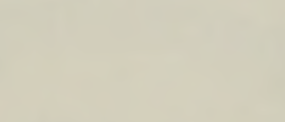




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MOTOROLA ELECTRONICS SALES LIMITED

COMMUNICATIONS DIVISION

RECEIVED

DEC 4 1980

PURCHASING DEPT

December 2, 1980

Corp. City of Hamilton,
Purchasing Department, City Hall,
Main Street West,
Hamilton, Ontario.

ATTENTION: MR. T. BRADLEY

Dear Tom:

We are about to complete the 1980 contract for the maintenance of your two-way radio system and thank you for your co-operation and assistance this past year. We do, however, have a great concern regarding the life expectancy of key components of this system. With very few exceptions, your mobile units are of a tube-type vintage, removed from production generations past. Some of the newest units are the "Motrac" model which was retired over 5 years ago.

It is becoming increasingly difficult to find parts for the older radios and simple repairs are no longer possible. These units are currently used by key personnel and vital snow removal equipment.

Although we have few breakdown reports on your base to show you, please be advised that it is old, worn, and future performance is unpredictable. The same sort of condition existed at the City of Burlington station last year. With no warning it just burned out and was unrepairable. We were fortunate at that time to find an alternative radio while a replacement unit was manufactured. I invite you to call them to verify this story (Don Chouinard - 335-7778).

The economical life expectancy of a radio system like that of a piece of road equipment, must be anticipated. If you wait until it can no longer be repaired, you and the City will be greatly inconvenienced while replacements are manufactured.

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MOTOROLA CANADA LIMITED

Page 2

December 2, 1980

Corp. City of Hamilton

Please consider this when constructing current and future budgets. Should you require any assistance in this matter, please do not hesitate to contact my office.

Respectfully yours,
MOTOROLA ELECTRONIC SALES LTD.

W.H. Stanton
Account Executive
Public Safety Markets

/sw



STANDARD BANK LIMITED

Bank of India

THE BANK OF INDIA, LTD.
CALCUTTA
1914

Branches: Calcutta, Bombay, Madras, etc.

Capital: Rs. 100 Lakhs
Reserve: Rs. 20 Lakhs
Surplus: Rs. 10 Lakhs



THE CORPORATION OF THE CITY OF HAMILTON

PURCHASING DEPARTMENT

HAMILTON, ONTARIO

June 12th, 1980.

Chairman and Members,
Board of Control,
City Hall, Hamilton.

Gentlemen:

As a result of one of the 1979 Zero Base Budget recommendations for the Fire Department that "a review of the radio and communications equipment service contracts take place and the feasibility of in-house testing and repairs of the equipment be established", a committee was formed having representatives from the Traffic, Streets & Sanitation, City Clerk, Fire, Regional Engineers departments and myself as Chairman.

This review has been completed and presents its report and recommendation.

1. The existing system of calling for public tenders is much cheaper than in-house servicing because of the age of our equipment. Most of the equipment is 20 to 25 years old and replacement parts are no longer available.

2. All departments are experiencing serious problems with the communication system with constant breakdowns, long periods of time without equipment because of lack of parts and frequent interference with other systems caused by poor base stations and the location of our antennas. Twenty-five radios have been rented during the past six months to enable our departments to continue to operate.

After several meetings of this committee, we are submitting the following recommendation - that a study of the existing communication systems used by the City of Hamilton and the Regional Engineers Department be made. The costs of this study to be

evenly shared by the City and the Regional Engineers. The company being recommended is the only independent consulting firm specializing in this related field.

The study to be completed in four months and will concentrate on the replacement and/or upgrading of existing mobile radio equipment; provide related costs for outright purchase or rental; present a conceptual design for sites, equipment, frequencies, etc.; budgetary cost estimates and schedule. A copy of their proposal is attached.

RECOMMENDATION:

That the KVA Communications and Electronics Co., Downsview, Ontario, be hired to study the communication systems of the City of Hamilton and the Regional Engineers Department at a cost not to exceed \$8,120.00. This cost to be shared equally between the City and the Regional Engineers Department.

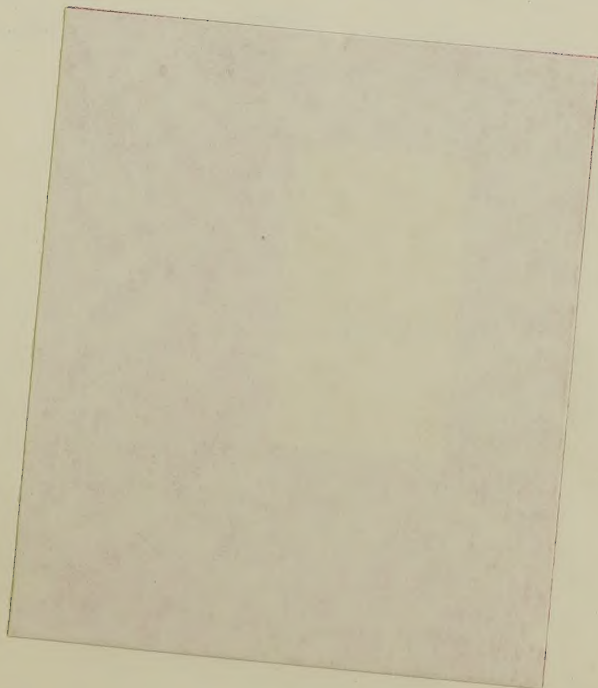
The City's share of the cost to be provided from the Contingency Account.

Respectfully submitted,

T. Bradley
T. Bradley,
Director of Purchases.

TB/jd

Att.



Ray Greene





THE CORPORATION OF THE CITY OF HAMILTON

PURCHASING DEPARTMENT

HAMILTON, ONTARIO

December 30, 1980.

Mr. W. H. McFarland, Chairman,
Capital Budget Committee.

Dear Sir:

In response to your letter dated December 22, 1980 regarding the Radio Mobile Communication System, please be advised that I am forwarding on to-day to the Transport and Environment Committee for their approval at the meeting to be held on January 5, 1981, the recommendations of the sub-committee which has been studying this project.

I would like to bring to your attention one change which should be made to the print-out that was included in your letter, being the amount of money for the project should be increased to \$451,000. which includes the final training programme and a small contingency amount. This amount does not include the 6% that will be required if the project is not approved and the tender awarded during the first quarter of 1981.

Yours truly,

A handwritten signature in dark ink, appearing to read "Tom Bradley".

Tom Bradley,
Director.

THE UNIVERSITY OF MICHIGAN

LIBRARY

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THE UNIVERSITY OF MICHIGAN
LIBRARY

1900

THE UNIVERSITY OF MICHIGAN
LIBRARY
1900



J. McFARLAND, A.P.A., R.I.A.
COMMISSIONER OF FINANCE
AND TREASURER

E.C. MATTHEWS, B.A., C.A.
DIRECTOR OF FINANCE

L.W. SELBY, B.Sc. (MATH), M.B.A.
DIRECTOR OF SYSTEMS AND
DATA PROCESSING

THE CORPORATION OF THE CITY OF HAMILTON

TREASURY

CITY HALL
HAMILTON, ONTARIO
L8N 3T4

TEL. 527-0241

December 22, 1980

DEC 29 1980

Mr. T. Bradley
Director of Purchases
City of Hamilton

Re: Capital Budget

I wish to thank you for your co-operation in submitting to us the projects which you wish to be considered for inclusion in the 1981-1985 Capital Budget. For your information, a meeting of the Capital Budget Committee was held Thursday, December 18, 1980 at which time we had the opportunity to present them with a review of 1980 and a forecast of the 1981-1985 Capital Budget, based on the submissions received to date.

The Committee members asked whether these projects had been approved by the various Standing Committees prior to their submission to us for consideration. I indicated that I assumed because these submissions were made to us prior to the election, that you had no opportunity to present them to the new Committee structure. We would, therefore, appreciate you reviewing your submissions, as included on the attached print-out sheets, to first of all ensure we have interpreted your request correctly and then submit the same to your Committee for approval.

The main areas of concern to you should be, starting on the left-hand side:

- (1) the year shown in this column is the year in which we make application to the Ontario Municipal Board for commencement;
- (2) that the project is described properly;
- (3) that under the "Start" and "Finish" columns we have the year of commencement and the year of finish stated properly;
- (4) that under the heading, "Subsidy and Other Receipts", we have recorded any recoveries properly.

James

451,000.00

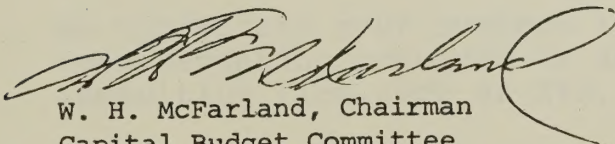
December 22, 1980

Mr. T. Bradley - Page 2

The balance of the columns mostly pertain to financing with the result the amounts we show to be financed in particular years do not necessarily have to coincide with the way you will be spending the money.

Your co-operation in reviewing these projects and submitting them to your Committee for approval will be appreciated. In the meantime I should advise you we will be presenting a summary of the Capital Budget to the Finance Committee probably January 8, 1981, and I would expect that the Capital Budget Committee will continue to meet on the submissions as presented and take into account any necessary revisions that you may have.

Yours very truly



W. H. McFarland, Chairman
Capital Budget Committee

WHMcF/djd
Att'd

c.c. Alderman F. A. Lombardo, Chairman, Transportation & Environment Committee
Mr. R. C. Prowse, Secretary, Transportation & Environment Committee

December 11, 1979

Mr. Tom Bradley
Director of Purchases
City of Hamilton
Purchasing Department
City Hall
Hamilton, Ontario
L8N 3T4

RECEIVED

DEC 13 1979

PURCHASING DEPT.

Dear Mr. Bradley:

We appreciate the information provided on the number and type of radio equipment now in use by the various city departments as contained in the document intitlled "Specifications for Mobile Radio Maintenance for 1979."

We are now in a position to provide a better estimate, as shown in the attached quotation, for an engineering analysis, study and recommendations for the updating and/or replacement of the existing systems.

We appreciate your concern in having the evaluation and recommendation provided by an independent professional consulting firm such as KVA.

We feel that the following benefits would be realized by engaging KVA to conduct this study:

- You gain the benefit of experts in the field, who through constant contact with the industry can insure that your requirements can be met with the most current, reliable and cost effective equipment and features available.
- Because we are not associated with specific suppliers, we can offer an unbiased opinion of the advantages and disadvantages of specific equipment features, and select the ones which offer the most cost beneficial to your operation.
- An efficiently designed system will streamline the tender procedure, reduce supplier misunderstandings and reduce overall equipment costs.

We understand that the decision to extend this study to include the regional departments has not yet been made. Consequently, our estimate at this stage is based only on the following systems:

- City of Hamilton Streets & Sanitation Department
- City of Hamilton Engineering Department

Cont'd...

- City of Hamilton Traffic Department
- City Clerk's Department

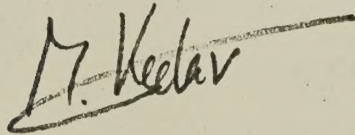
The extension of the study to include the Regional Roads and Public Works Department will increase the study costs by a factor which is difficult to estimate at this time.

As per our discussion, following a decision by the regional engineering department, we would be pleased to revise our cost estimate.

Again, we look forward to the opportunity to be of service to the City of Hamilton in the near future.

Yours very truly,

KVA COMMUNICATIONS AND ELECTRONICS CO.

A handwritten signature in dark ink, appearing to read "M. Kedar", with a horizontal line drawn through it.

M. Kedar,
Vice-President

MK/fn

PROPOSAL
FOR
A COMMUNICATIONS STUDY
FOR
THE CITY OF HAMILTON

Client: City of Hamilton
Quote: 79-1013Q
Prepared by: J. Herman Vanderlaag, P. Eng.
Date: December 11, 1979

1.0 Introduction

This is a proposal to conduct a study of the radio communication requirements for the City of Hamilton, for the following municipal departments:

- Streets and Sanitation
- Engineering
- Traffic
- City Clerk's Office

The proposed study would constitute the first step in the replacement and/or upgrading of the existing mobile radio systems now in service. Pending budget approvals to proceed, this study would normally be followed by the preparation of a tender specification, the tendering process, and finally, project management during the implementation phase.

2.0 Scope of Work

The study would involve a comprehensive look at the current and future needs of the departments involved. The first step would be to evaluate the current systems/equipment to establish what problems and short-comings exist.

In-depth interviews would be conducted with the various users to determine their basic communication needs; i.e.

- number of units
- dispatch facilities
- volume of calls
- signalling requirements
- current and future areas of operation
- hours of service
- maintenance requirements
- modes (mobile, portable, pager)

Cont'd...

A field survey would then be conducted to examine existing and new potential radio sites. Some preliminary coverage studies would also be carried out using the proposed sites. A check of availability, ownership and rental costs would also be made.

Once the basic needs have been defined and the field work completed, a conceptual system design would be discussed with the end users. This includes the selection of radio sites, equipment features and relative costs. The type and number of channels required would be established, and the local Department of Communications consulted as to availability of channels and frequency assignments.

Once the conceptual design was approved in principle, the final report would be prepared, outlining the budgetary cost estimates and proposed implementation schedule.

3.0 Duration of Work

It is anticipated that the study would require approximately three months to complete.

4.0 Cost Estimate

The time required to carry out the tasks described under the scope of work would be as follows:

<u>Item</u>	<u>Man-days</u>
Existing System Evaluation	2
Requirements Study	4
Field Survey	3
DOC Meetings	1
Conceptual Design and Presentation	4
Final Report Preparation	<u>3</u>
TOTAL	17

Cont'd...

This would represent a total cost of \$4,760.00 (\$280/day, including travel costs). A monthly invoice would be issued according to actual time spent - the total cost not to exceed the price quoted herein.

This quotation shall remain valid until January 31, 1980, unless validity is extended in writing.

5.0 Qualifications

KVA employees have been closely associated with the radio communications industry collectively for over 20 years. Experience was gained during this time in all areas of radio systems, from initial conception, through equipment specification and tendering, to actual implementation. We have attached a partial listing of the major systems with which we have been directly involved in the past (including several projects for the City of Hamilton - Police and Fire).

We have also devoted a great deal of time to become familiar with virtually all the equipment and suppliers of radio systems and ancillaries available today.

To further establish our integrity, we have also attached a list of trade references which we would urge you to contact to confirm our credibility in the area of radio communications.

KVA

June 6, 1980.

RECEIVED

JUN 9 1980

PURCHASING DEPT.

Mr. T. Bradley,
Director of Purchases,
Purchasing Dept.,
City Hall,
Hamilton, Ontario.
L8N 3T4

Dear Sir:

Re: Communication Study, Ref.79-1013P2

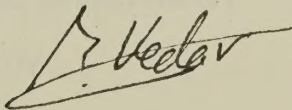
Further to our meeting of June 5, 1980, please find attached KVA's proposal No. 79-1013 P2 for a joint communication study for the city of Hamilton and the Regional Municipality of Hamilton-Wentworth.

As discussed the final report could be presented before the end of October 1980, in time for 1981 budget preparation.

We trust you will find our proposal acceptable and we look forward to commence the study at your approval.

Yours very truly,

KVA Communications & Electronics Co.



M. Kedar

MK/et



KVA Communications and Electronics Co.

Radio Communications System Specialists
Design and Project Management

PROPOSAL

FOR

A COMMUNICATIONS STUDY

FOR

THE CITY OF HAMILTON

AND

THE REGIONAL MUNICIPALITY

OF

HAMILTON - WENTWORTH

364 Supertest Road, Downsview, Ontario • (416) 661-6644

PROPOSAL
FOR
A COMMUNICATIONS STUDY
FOR
THE CITY OF HAMILTON
AND
THE REGIONAL MUNICIPALITY
OF
HAMILTON - WENTWORTH

Client: City of Hamilton/Regional Municipality of Hamilton - Wentworth
Project: 79-1013 P2
Prepared by: J. Herman Vanderlaag, P. Eng./Mike Kedar
Date: June 6, 1980.

1.0 Introduction

This is a proposal to conduct a study of the radio communication requirements for the City of Hamilton and the Regional Municipality for the following municipal departments:

<u>Hamilton</u>	<u>Region</u>
o Streets and sanitation	o Transportation Engineering services/ Regional Roads
o Engineering	o Design and construction/ streets and sanitation
o Traffic	
o City Clerk's Office	

The proposed study would constitute the first step in the replacement and/or upgrading of the existing mobile radio systems now in service. Pending budget approvals to proceed, this study would normally be followed by the preparation of a tender specification, the tendering process, and finally, project management during the implementation phase.

2.0 Scope of Work

The study would involve a comprehensive look at the current and future needs of the departments involved. The first step would be to evaluate the current systems/equipment to establish what problems and short comings exist.

In-depth interviews would be conducted with the various users to determine their basic communication needs; i.e.

- o number of units
- o dispatch facilities/Possible City & Region joint dispatch
- o volume of calls/per department & source
- o signalling requirements
- o current and future areas of operation
- o hours of service
- o maintenance requirements
- o modes (mobile, portable, pager)

Cont'd...

A field survey would then be conducted to examine existing and new potential radio sites. Some preliminary coverage studies would also be carried out using the proposed sites. A check of availability, ownership and rental costs would also be made.

Once the basic needs have been defined and the field work completed, a conceptual system design would be discussed with the end users. This includes the selection of radio sites, equipment features and relative costs. The type and number of channels required would be established, and the local Department of Communications will be consulted as to availability of channels and frequency assignments.

Once the conceptual design was approved in principle, the final report would be prepared, outlining the budgetary cost estimates and proposed implementation schedule.

3.0 Duration of Work

It is anticipated that the study would require approximately four months to complete.

4.0 Cost Estimate

The estimated time required to carry out the tasks described under the scope of work would be as follows:

<u>Item</u>	<u>Man-days (8hrs)</u>
Existing system evaluation	5
Requirements Study	4
Field survey	5
DOC Meetings	2
Conceptual Design and Presentation	8
Final Report Preparation	<u>5</u>
TOTAL	29

This would represent a total cost of \$8,120.00 (\$280/day, including travel costs). A monthly invoice would be issued according to actual time spent - the total cost shall not exceed the price quoted herein.

Cont'd...

This quotation shall remain valid until September 1, 1980, unless validity is extended in writing.

5.0 Qualifications

KVA employees have been closely associated with the radio communications industry collectively for over 20 years. Experience was gained during this time in all areas of radio systems, from initial conception, through equipment specification and tendering, to actual implementation. We have attached a partial listing of the major systems with which we have been directly involved in the past (including several projects for the City of Hamilton - Police and Fire).

We have also devoted a great deal of time to become familiar with virtually all the equipment and suppliers of radio systems and ancillaries available today.

To further establish our integrity, we have also attached a list of trade references which we would urge you to contact to confirm our credibility in the area of radio communications.

RESUME

of

J. HERMAN VANDERLAAG, P. ENG.

EDUCATION: 1976 Management skills workshop; intensive one week course covering all basics of management techniques and principles.

1968-1971 University of Calgary, Calgary, Alberta; graduated with honours and obtained a B.Sc. degree in Electrical Engineering; awarded gold medal from Association of Professional Engineers, Geologists, and Geophysicists of Alberta to Electrical Engineering.

LANGUAGES: English, Dutch

PERSONAL: Born: September 13, 1948
Height: 5'11"
Weight: 185 lbs.
Marital Status: Married, 2 children

PROFESSIONAL STATUS: Registered professional engineer with A.P.E.O. (Ontario) and A.P.E.G.G.A. (Alberta).

CAREER SUMMARY: Mr. Vanderlaag is currently a principal partner and systems engineer with KVA Communications and Electronics Co.

Extensive experience gained in all aspects of radio communications systems, including definition of requirements, preparation of technical proposals, system design, system installation and optimization, troubleshooting, scheduling, and evaluation of suppliers. Applications encountered in a variety of industries, forestry, industrial plants, government services, petroleum (exploration, refining and transportation), public safety agencies, telephone and RCC companies, transportation and utilities.

EXPERIENCE: 1976-1979

Employer: Motorola Canada Ltd., Communications Division, Willowdale, Ontario.

Position: Engineering Services Manager

Responsibilities: Overall management responsibility for a staff of 22, including systems engineers, technicians, and support personnel. This included budget control, staffing, and training of all engineering services department staff. Also provided project engineering functions for

Cont'd...

KVA Communications and Electronics Co.

major projects, including radio systems for RCMP in B.C., CP Rail, Metro Toronto Department of Ambulance services, and a number of public safety agencies in Ontario.

1975-1976

Employer: Canadian Motorola Electronics Co., Willowdale, Ontario.

Position: Systems Engineering Manager

Responsibilities: Management of Central Area (Ontario) systems engineering staff. Provided direct control of a number of major bidding activities and project implementation, including systems for Union Gas, Kingston Police, Sudbury Police and Transit, and the New Brunswick Electric Power Commission.

1973-1975

Employer: Canadian Motorola Electronics Co., Calgary, Alberta.

Position: Systems Engineer

Responsibilities: Helped set up the first Satellite systems engineering office in Calgary. Also carried out implementation of major radio systems for Alberta Forestry, Calgary and Edmonton Police, Saskatchewan Power Corporation, and Northwest Lands and Forests.

1971-1973

Employer: Canadian Motorola Electronics Co., Willowdale, Ontario.

Position: Junior Engineer

Responsibilities: As a recent graduate, participated in a variety of activities, related to radio systems. Designed and implemented a system for Interprovincial Pipe Line from Edmonton to Gretna, and for Union Gas in the London area.

RESUME

of

Robert W. Clements, P. Eng.

EDUCATION:

- 1979 Management skills workshop; intensive one week course covering all basics of management techniques and principles.
- 1976-1977 University of Western Ontario, Faculty of Education.
Degree: Bachelor of Education
- 1967-1971 University of Toronto, Faculty of Engineering.
Degree: Bachelor of Applied Science in Electrical Engineering.

LANGUAGES: English

PERSONAL: Born: April 5, 1948
Height: 5'11"
Weight: 140 lbs.
Marital Status: Married, 2 children

PROFESSIONAL STATUS: Registered professional engineer with APEO.

CAREER SUMMARY: Mr. Clements is presently senior project engineer with KVA Communications and Electronics Co. Extensive experience gained in all aspects of radio communications systems, including definition of requirements, preparation of technical proposals, system design, system installation and optimization, troubleshooting, scheduling, and evaluation of suppliers. Applications encountered in a variety of industries, forestry, industrial plants, government services, petroleum (exploration, refining and transportation), public safety agencies, telephone and RCC companies, transportation and utilities.

EXPERIENCE:

1979-1980 Motorola Canada Ltd., Communications Division,
Employer: Willowdale, Ontario.

Position: Systems Engineering Group Leader

Responsibilities: Supervised and directed the work of five system engineers, and trained new engineers in design procedures and skills. Carried out a full range of system engineering duties for a variety of

Cont'd...

KVA Communications and Electronics Co.

projects including the main project engineering responsibilities for RCMP's province-wide communication system in British Columbia, and a refinery communication system for Petrosar.

1978-1979

Employer: Motorola Canada Ltd.

Position: Senior Systems Engineer

Responsibilities: Performed all major systems engineering duties with chief responsibility being the RCMP British Columbia system.

1975-1976

Employer: Andrew Antenna Co. Ltd., Whitby, Ontario

Position: Inside Sales

Responsibilities: Included preparation of proposals and customer studies for products ranging from satellite earth stations and antennas to underground mine communications equipment.

1972-1975

Employer: Motorola Canada Ltd.

Position: Systems Engineer

Responsibilities: Carried out a variety of radio system design functions, working on several police and fire and other governmental agencies including a major radio system to provide mobile radio coverage for most of the developed area of Newfoundland. Principal design responsibility for a major radio paging system to provide city-wide coverage of Metropolitan Toronto.

RESUME

of

MICHAEL KEDAR, B.Sc.

EDUCATION:

- 1979 Management Consulting Development Program
Title: Project Management.
- 1968-1970 University of Illinois
Correspondence courses in Management Development
(through Motorola).
Degree: Corresponding to M.B.A.
- 1968-1969 University of Toronto
Extension courses in Computer Programming and
Systems.
- 1962-1966 Ecole Technique Superieure
Geneva, Switzerland
Degree: Ingenieur Diplome (Electronique)
Honours: Mention Bien ("A" Standing)
Stood first in Faculty for 1966.
- 1956-1959 O.R.T. Technical College
Tel Aviv, Israel
Degree: Technologist (Mechanics)
Honours: Stood in top 10% of College (1959)
Scholarship (1962-66).

LANGUAGES: English, French, German, Hebrew.

PERSONAL: Born: July 16, 1941
Height: 5'10"
Weight: 168 lbs.
Married: 1977. No children.
Wife a Doctoral Candidate and Teaching
Assistant at the University of Toronto.

CAREER SUMMARY: Mr. Kedar is currently a principal business manager and project engineer with KVA Communications and Electronics Co. His 14 years in the radio communication industry in Canada has given him wide experience in all aspects of application engineering, system design and project management. For the past 5 years he has been extensively involved as systems consultant and project manager of large government and public safety radio communication systems with total project

Cont'd...

CAREER SUMMARY:
Cont'd.

responsibilities. Mr. Kedar's experience qualifications and personality, make him well suited to manage and lead the application engineering and implementation of multi-discipline voice and data communications projects.

EXPERIENCE:

1977 to 1979 program manager, principal communication system project manager, Canadian Motorola Electronics Company, Willowdale, Ontario.

Tasks: As a principal project manager Mr. Kedar had project responsibilities on major programs like the R.C.M.P. Interior British Columbia Communication System, C.P. Rail wayside radio communication systems and Montreal Fire and Public Works project. He was responsible for all technical and financial co-ordinations with the end user as well as internal engineering and production schedules. His responsibilities included the field installation schedules and monitoring as well as final system tests, documentation and project commissioning.

1975 to 1977 systems consultant, principal communication systems consultant, Canadian Motorola Electronics Company, Willowdale, Ontario.

Tasks: As a principal systems consultant Mr. Kedar was involved in application engineering and product training. The consulting activities included communications control centres, high capacity paging systems, close circuit television, supervisory control equipment and various multi-channel radio systems.

1971 to 1975 distribution, sales, export manager, sales manager and account specialist, Canadian Motorola Electronics Company.

Tasks: In the distribution organization Mr. Kedar was in charge of sales management of radio communications systems in various market segments, specializing in public safety, transit and municipal governments. Sales management activities involved total account responsibilities and interface between the customer and the factory.

Cont'd...

-3-

EXPERIENCE - Cont'd. 1966 to 1971 engineering, design engineer, system engineer and project engineer, Canadian Motorola Electronics Company, Willowdale, Ontario.

Tasks: As a design engineer Mr. Kedar was involved in radio and control equipment basic circuit design, as well as system design involving design of total communications and control systems.

Partial Listing of Communication Systems Users
Under Contract for Engineering Services

- Ontario Ministry of Government Services
- Ontario Ministry of Health
- Ontario Ministry of Natural Resources
- Ontario Provincial Police
- Trans-Northern Pipe Lines Co.
- Teleride Corporation
- Winnipeg Transit
- Canadian Pacific Rail
- Town of Oakville
- City of Oshawa
- North York Hydro
- Willowglen Company
- Canadian Tire
- Check Point Communications
- Canadian Pacific Consulting Services
- Ottawa - Carlton Regional Transit Commission
- Algoma Central Railway
- The Beeper People

KVA Communications and Electronics Co.

Partial Listing of Communications Systems

with which KVA Employees have been Actively Involved

Public Safety Systems

RCMP - IBCCS
Sudbury Regional Police
Durham Regional Police
Ottawa Police
Hamilton - Wentworth Regional Police
Haldimand - Norfolk Regional Police
Calgary City Police
Regina Police
Kingston Police
Hamilton Fire Department
London Fire Department
Metropolitan Toronto Department of Ambulance Services
North York Fire Department
Montreal Urban Community Public Works/Fire
Oakville Public Works

Utilities

New Brunswick Electric Power Commission
Hydro - Quebec
Ontario Hydro
Calgary Power
Saskatchewan Power Corporation
Scarborough Public Utilities Commission
Union Gas Company
Alberta Government Telephones
The New Brunswick Telephone Company
British Columbia Telephone Company

Transportation

CP Rail
CNR
Sudbury Transit
Oakville Transit
Belleville Transit
Interprovincial Pipelines
Ministry of Transportation & Communications of Ontario
Alberta Department of Highways
Trans-Northern Pipe Line
Winnipeg Transit

TRADE REFERENCES

Durham Regional Police
7 Centre Street, North
Oshawa, Ontario
L1G 4B7

Attn: Staff Sergeant Bob Jarvest
Communications Officer
(416) 579-1520

CP Rail Communications
Windsor Station
Montreal, Quebec
H3C 3E4

Attn: Mr. Juri Kraav, Eng.
Radio System Engineer
(514) 395-6982

R.C.M. Police
Telecommunications Branch
1200 Alta Vista Drive
Ottawa, Ontario
K1A 0R2

Attn: Mr. Gerry Lutley, P. Eng.
O.I.C. Engineering
(613) 993-9740

Metropolitan Toronto
Department of Ambulance Services
674 Markham Street
Toronto, Ontario
M6G 2L9

Attn: Mr. G.A. Oksiutik, P. Eng.
Manager-Communications Systems
(416) 367-8351

The New Brunswick Electric Power
Commission
P.O. Box 2000
Fredericton, N.B.
E3B 4X1

Attn: Mr. Yvon Picot, P. Eng.
System Telecommunications
Engineer
(506) 453-4243

Ontario Police Commission
Technical Services Branch
25 Grosvenor Street
Toronto, Ontario
M7A 2H3

Attn: Mr. Ron Durand
Manager-Communications Services
(416) 965-3281

The New Brunswick Telephone Company
155 Woodward Avenue
Saint John, N.B.

Attn: Mr. Don Crawford
Manager-Special Services- Mobile
(506) 693-6169

Ministry of Transportation and
Communications of Ontario
1201 Wilson Avenue
Downsview, Ontario
M3M 1J8

Attn: Mr. Harry George
(416) 248-3341

North York Fire Department
5151 Yonge Street
Willowdale, Ontario
M2N 5P5

Attn: Captain Currie
(416) 221-3444

Trans-Northern Pipe Line Company
Manulife Centre, Suite 1212
55 Bloor Street, West
Toronto, Ontario
M4W 3H3

Attn: Mr. L.M. Nagata, P. Eng.,
Assistant Chief Engineer
(416) 924-3353

The Town of Oakville
Department of Public Works
2274 Trafalgar Road
P.O. Box 310
Oakville, Ontario
L6J 5A6

Attn: Mr. Barri Amor

The City of Winnipeg
Transit System
100 Main Street
Winnipeg, Manitoba
R3C 1A5

Attn: Mr. Roy Church,
Manager, Transit Operation

RESUME

NAME: J. Herman Vanderlaag, P. Eng.
BORN: September 13, 1948
MARITAL STATUS: Married, 2 Children
HEIGHT: 5' 11"
WEIGHT: 185 lbs.

EDUCATION HISTORY

1976 - Management skills workshop; intensive one week course covering all basics of management techniques and principles.
1968 - 1971 - University of Calgary, Calgary, Alberta; graduated with honours and obtained a B.Sc. degree in Electrical Engineering; awarded gold medal from Association of Professional Engineers, Geologists, and Geophysicist of Alberta to Electrical Engineering.

EMPLOYMENT HISTORY

Employer - Motorola Canada Ltd., Communications Division
1971 - 1973 - Junior Engineer; Willowdale, Ontario
1973 - 1975 - System Engineer; Calgary, Alberta
1975 - 1976 - Systems Engineering Manager; Willowdale, Ontario
1976 - 1979 - Engineering Services Manager; Willowdale, Ontario

SUMMARY OF EXPERIENCE

Extensive experience gained in all aspects of radio communications systems, including definition of requirements, preparation of technical proposals, system design, system installation and optimization, troubleshooting, scheduling, and evaluation of suppliers. Applications encountered in all segments of industry - forestry, industrial plants, government services, petroleum (exploration, refining, and transportation), public safety agencies, telephone and RCC companies, transportation, and utilities.

PROFESSIONAL ASSOCIATIONS

Registered professional engineer A.P.E.G.G.A. (Alberta), and A.P.E.O. (Ontario) Member I.E.E.E.

REFERENCES

Available upon request.

Partial Listing of Communications Systems
with which KVA Employees have been Actively Involved

Public Safety Systems

RCMP - IBCCS
Sudbury Regional Police
Durham Regional Police
Ottawa Police
Hamilton - Wentworth Regional Police
Haldimand - Norfolk Regional Police
Calgary City Police
Regina Police
Kingston Police
Hamilton Fire Department
London Fire Department
Metropolitan Toronto Department of Ambulance Services
North York Fire Department
Montreal Urban Community Public Works/Fire

Utilities

New Brunswick Electric Power Commission
Hydro - Quebec
Ontario Hydro
Calgary Power
Saskatchewan Power Corporation
Scarborough Public Utilities Commission
Union Gas Company
Alberta Government Telephones
The New Brunswick Telephone Company
British Columbia Telephone Company

Transportation

CP Rail
CNR
Sudbury Transit
Oakville Transit
Belleville Transit
Interprovincial Pipelines
Ministry of Transportation & Communications of Ontario
Alberta Department of Highways

Trade References

Durham Regional Police
77 Centre Street North
Oshawa, Ontario
L1G 4B7

Attn: Staff Sergeant Bob Jarvest
Communications Officer
(416) 579-1520

The New Brunswick Telephone Company
155 Woodward Avenue
Saint John, N.B.

Attn: Mr. Don Crawford
Manager-Special Services--
Mobile
(506) 693-6169

CP Rail Communications
Windsor Station
Montreal, Quebec
H3C 3E4

Attn: Mr. Juri Kraav, Eng..
Radio System Engineer
(514) 395-6982

Ministry of Transportation and
Communications of Ontario
1201 Wilson Avenue
Downsview, Ontario
M3M 1J8

Attn: Mr. Harry George
(416) 248-3341

R.C.M. Police
Telecommunications Branch
1200 Alta Vista Drive
Ottawa, Ontario
K1A 0R2

Attn: Mr. Gerry Lutley, P. Eng.
O.I.C., Engineering
(613) 993-9740

North York Fire Department
5151 Yonge Street
Willowdale, Ontario
M2N 5P5

Attn: Captain Currie
(416) 225-4611

The Municipality of Metropolitan Toronto
Department of Ambulance Services
674 Markham Street
Toronto, Ontario
M6G 2L9

Attn: Mr. G.A. Oksiutik, P. Eng.
Manager-Communications Systems
(416) 367-8351

The New Brunswick Electric Power
Commission
P.O. Box 2000
Fredericton, N.B.
E3B 4X1

Attn: Mr. Yvon Picot, P. Eng.
System Telecommunications Engineer
(506) 453-4243

Ontario Police Commission
Technical Services Branch
25 Grosvenor Street
Toronto, Ontario
M7A 2H3

Attn: Mr. Ron Durand
Manager-Communications Services
(416) 965-3281

Amplified Resume

MIKE KEDAR

EMPLOYMENT HIGHLIGHTS

Program Management (Canadian Motorola Electronics Company)

Since introduction of Program Management function into the Canadian operation applicant has been assigned to large Communication Systems and responsible for the co-ordination of all Company functions and/or Department in response to tenders and execution of large contracts.

Position involves similar responsibilities to Project as GENERAL MANAGER to Departments.

Currently managing major programmes totaling over 14 million dollars of turn-key communication systems for Government, Public Safety and Transportation Agencies.

Results

Under his management projects were executed on schedule with increased revenues and improved company image and market penetration. The following are some examples:

- A major programme in Montreal was completed 2 months ahead of schedule with additional negotiated 300K of list price business.
- A large transportation communication project was sold at premium and supplied on schedule with the result of an additional 6000K of pending directed contract.
- A major province-wide communication system was awarded and is under construction, with completion dates in 3 phases ranging to 1981.

References

Available.

Synopsis of Resume
(continued)

1979-1980

1979

Management Consulting Development Programme
Title: Project Management.

Languages:

English, French, German, Hebrew.

PERSONAL

Born:

16 July 1941. Height: 5'10", weight: 168 lbs.

Married:

1977. No children.
Wife a Doctoral Candidate and Teaching Assistant
at the University of Toronto.

Health:

Excellent. Health club member and non-smoker.

Finances:

In good order.

Hobbies:

Competitive tennis, travel, the arts (Vice-president of the Toronto Symphony Associates).

S y n o p s i s of Resume of:
MIKE KEDAR

EMPLOYMENT

1967 - 1979

PROGRAM MANAGER
COMMUNICATION SYSTEMS
Canadian Motorola Electronics Company.

Moved up through following stages:

Design Engineer	1967
System Engineer	1968-9
Project Engineer	1969-71
Sales	1971
Export Manager	1972-3
Account Specialist	1973
Account Executive	1974
Account Executive	
Manager	1975-6
Systems Consultant	1976
Program Manager	1977 to 1979

EDUCATION

1956-1959

O.R.T. Technical College
Tel Aviv, Israel
Degree: Technologist (Mechanics)
Honours: Stood in top 10% of College (1959)
O.R.T. Scholarship (1962-6).

1962-1966

Ecole Technique Supérieure
Geneva, Switzerland
Degree: Ingénieur Diplômé (Électronique)
Equivalent to B.S. in Electronics
Honours: Mention Bien ("A" Standing)
Stood first in Faculty for 1966.

1968-1969

University of Toronto
Extension courses in Computer Programming and
Systems

1968-1970

University of Illinois
Correspondence courses in Management Development
(through Motorola).
Degree: Corresponding to M.B.A.

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